

REMARKS

In the amendments above, Claims 1, 3, 6-9, 11-15, and 17 have been amended and Claims 2, 10, and 16 have been cancelled, to more particularly point out and distinctly claim Applicants' invention and to define the invention over the prior art.

Claims 1-17 have been rejected under 35 U.S.C § 103(a) as being unpatentable over Braun et al., U.S. Patent No. 4,979,556 ("Braun").

Applicants respectively traverse this rejection.

With regard to Claims 1, 4, 5, and 14, Braun teaches the use of a light beam that is wider than the maximum gap between the rolls. However, as is disclosed in the patent in column 4, lines 6-13, the result of expanding the width of the light beam is increasing the option of the user as to the positioning of the light source relative to the rolls. Braun does not refer to the need to divert the light since in his controller; there is no spatial limitation to reach the rolls from both sides so as to transfer the light from the source side to the detector side.

In contrast, in the claimed invention, in the seamer that a chuck and a roll are parts of, there is a predetermined and very narrow space. Therefore, broadening the light beam as suggested in Braun column 6, lines 34-39, will not assist in overcoming the spatial limitations of the seamer and will not allow the required transmission of light.

In order for the light to be transmitted through a gap between a chuck and a roll in a seamer, diversion of light by lenses or prisms as disclosed in the claimed invention is required.

Claim 1 as well as Claim 14 were amended accordingly. Claims 4 and 5 are dependent upon amended Claim 1.

Claims 2 and 16 were cancelled above.

With regard to Claims 3 and 15, Braun mentions the use of laser beam. However, the claimed invention can be employed using other radiation sources, as mentioned in the claims.

With regard to Claims 6-8 and 17, Braun teaches the use of prisms. In Column 4, line 6-11, Braun discloses

"the light beam is directed by mirrors or prisms for properly positioning the light beam in relation to the rolls"

As mentioned herein before, the diversion of light in the claimed invention is aimed at solving the spatial problems in a seamer. There is no positioning issue.

With regard to Claim 9, Figure 2 of Braun illustrates directing the light beam through tubes 22. In the claimed invention, there are no tubes and the spatial limitation issue is referred to.

Claim 10 has been cancelled above.

With regard to Claim 11, the CCD camera in the claimed invention is a two- dimensional array detector, which is of no real use in Braun's system. In the two- dimensional detector detecting the gap in the claimed invention, there is a use of more than a distance measurement – a data profile.

With regard to Claims 12 and 13, the claimed invention does not aim at controlling the gap between any rolls. The device in the claimed invention is operated in an off-line manner periodically so as to check the status of the seamer.

Claims 1-6 and 11-17 have been rejected under 35 U.S.C § 103(a) as being unpatentable over Tamler et al., U.S. Patent No. 4,821,544 ("Tamler").

Applicants respectively traverse this rejection.

With regard to Claims 1, 4-6, 14, and 17, Tamler teaches the use of line optical system in column 2, lines 19-20. The purpose of such a line optical system is expanding the light beam so that the light beam is always wider than the gap between the rolls, and thus the accuracy of the measurement is obtained. However, the claimed invention requires an optical system that will not be necessarily wider than the gap, but rather one that will fit the very tight gap of the roll and the chuck in the seamer, a requirement that may be fulfilled by diverting the light and not by widening it.

Claims 2 and 16 have been cancelled above.

With regard to Claims 3, 15, and 11-13, the arguments set forth above regarding these claims are similarly applicable here.

Claim 1 as well as Claim 14 were amended accordingly. The other claims are dependent claims.

Claims 7-10 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamler in view of Braun.

Applicants respectively traverse this rejection.

With regard to Claims 7-9, in Tamler there is no indicated problem or implication of such situation while as mentioned herein before. Braun teaches the directing system to establish relative positioning of the source and the detector. In both Braun and Tamler, there is no spatial limitation as in a seamer that is not implied or suggested. The spatial limitation is typical to a seamer that is addressed only in the claimed invention, and there is a need to provide an optical system that is capable of measuring the gap between the chuck and the roll.

Claim 10 has been cancelled above.

For all of the above reasons, Applicants submit that the claims herein as amended above are in proper form and now define patentably over the prior art. Therefore, the rejections under § 103 (a) should be withdrawn.

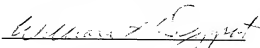
Should the claims herein be allowable but for minor matters that could be the subject of an Examiner's Amendment or a supplemental submission by Applicants, Applicants would appreciate that Examiner's contacting Applicants' undersigned attorney.

In view of the above amendments and remarks it is respectfully submitted that the amended and original claims are in condition for allowance. A prompt notice of allowance is respectively and earnestly solicited.

Reconsideration and allowance of all the claims herein are respectfully requested.

Respectfully submitted,

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